Quantification of Sugars and Acids During Berry Development of Grapevines Subjected to Different Levels of Drought Stress

A. BAERT, J. GOETEYN, B. A. E. VAN DE WAL, K. STEPPE

Ghent University, Faculty of Bio-Engineering, Department of Applied Ecology and Environmental Biology, Laboratory of Plant Ecology, Coupure links 653, BE-9000 Gent, Belgium – Aebaert.Baert@UGent.be, Kathy.Steppe@UGent.be

Grapevines (*Vitis vinifera* L.) are often subjected to drought stress and this may become even more common due to global climate change and the increasing water scarcity across the globe. In central Europe, for instance, more extreme temperatures, a higher frequency of summer dry periods and a reduction in soil moister are expected to occur. Already now, significant temperature rises have been observed in wine regions over the last decades, leading to a growing interest in irrigation scheduling. Mild drought stress at the right time can enhance grape composition and plays a crucial role in the production of quality wines, resulting in wines with different aromas, flavours, appearance and colours. Both excessive or no drought stress, on the other hand, negatively affects the high quality potential of grapes and wines. The implementation of efficient irrigation scheduling may thus become an invaluable tool to improve the fruit composition and thus quality, but is clearly not exclusively a story of fulfilling water demand. It is crucial to expand our understanding in drought stress effects on grape components associated with grape and wine quality, and to define the optimum level and time. Among others, sugars and acids are such components. Because preliminary research indicated that sugar concentration in berries of drought-stressed grapevines was higher at harvest compared to well-watered grapevines, while acid concentration was lower, future research will focus on the quantification of sugars, acids and other quality components in berries throughout the growing season and investigate the impact of different levels and timing of drought stress.